



HISTORICALLY BLACK COLLEGES AND UNIVERSITIES

NASA TECHNOLOGY INFUSION

ROAD TOUR



AND MINORITY-SERVING INSTITUTIONS

Virginia Commonwealth University (VCU)

Gregory E. Triplett, PhD
Professor and Associate Dean
School of Engineering
Richmond, Virginia



Office of
Small Business
Mentor-Protégé Program

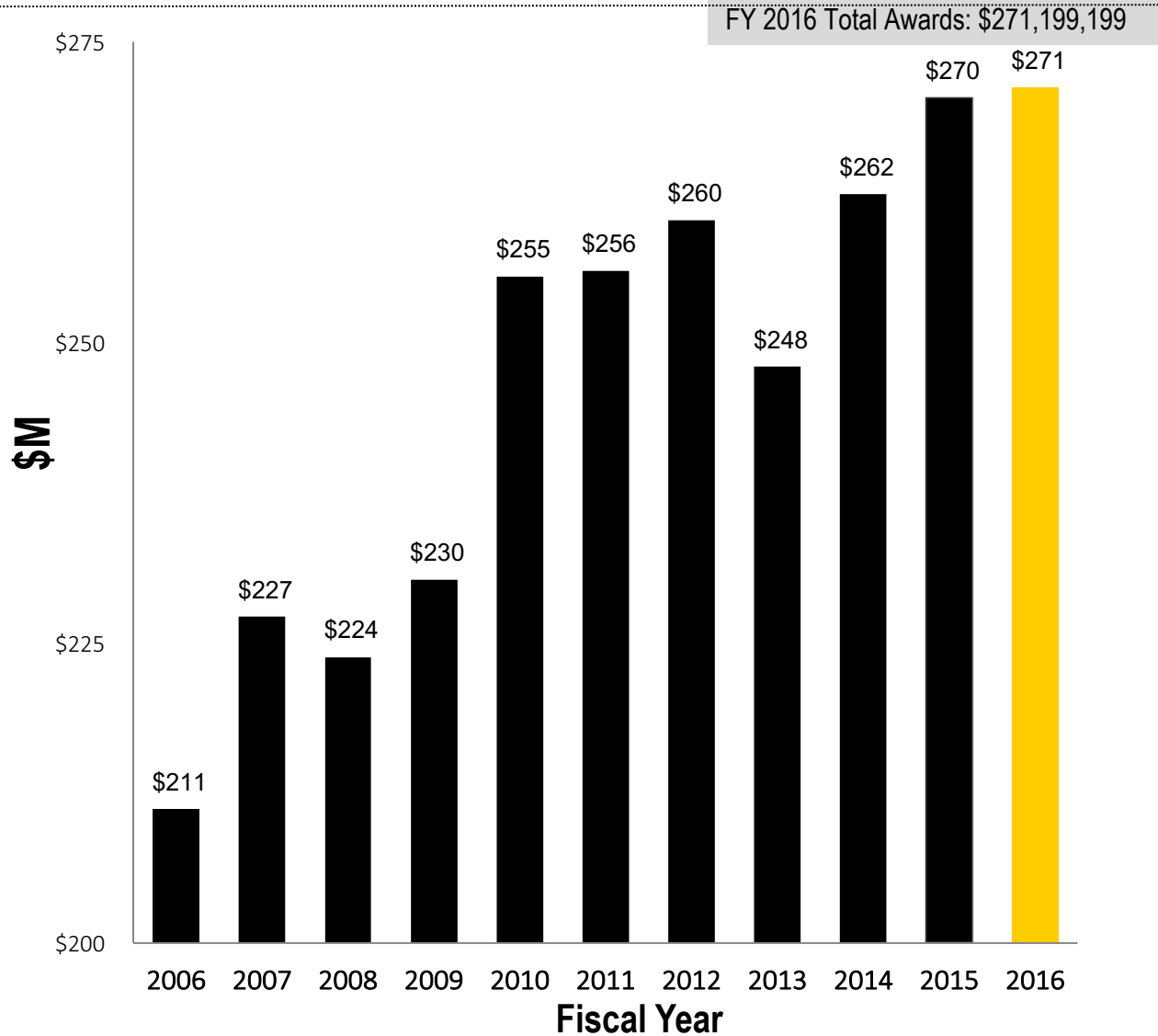
VCU Overview

- Largest Urban Research University in Virginia*
- 225 degree and certificate programs (14 Schools/College)
- 22 graduate programs ranked in US News & World Report Top 50
- \$271M/yr sponsored research funding**
- Over 31,000 students (20k FT)
- 19:1 student-faculty ratio
- 41.3% Male / 58.7% Female
- 50.2% Minority / 49.7% White
- Undergraduate research opportunities ([UROP](#))
- Dean's Undergraduate Research Initiative ([Engineering](#))

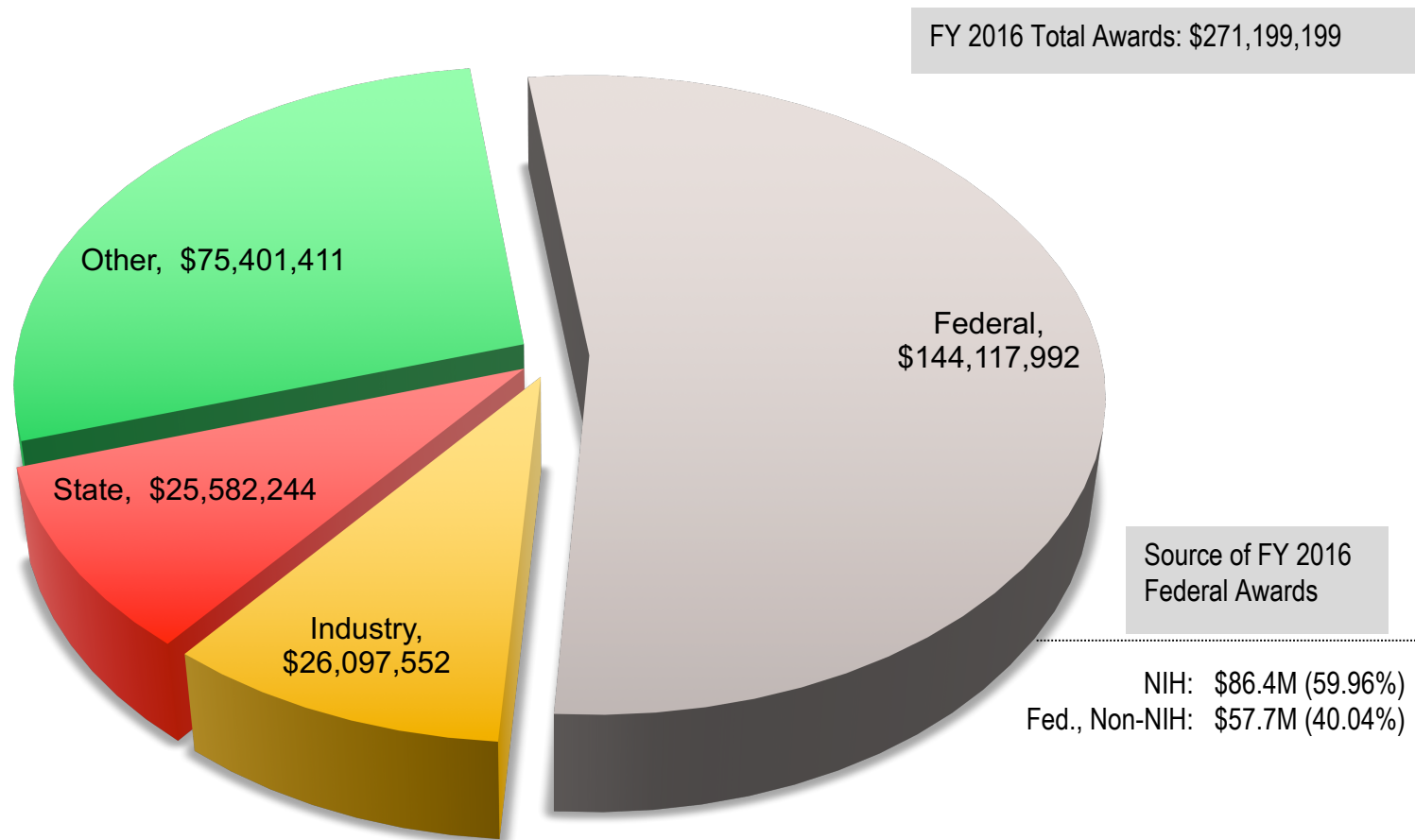
*Carnegie Foundation :“Research University-Very High Research Activity” and “Community Engagement” Status category

**NSF Ranking: top 100 university in research expenditures: 81 in federal expenditures and 97 in total expenditures (FY15)

VCU Sponsored Program Awards FY 2006-2016

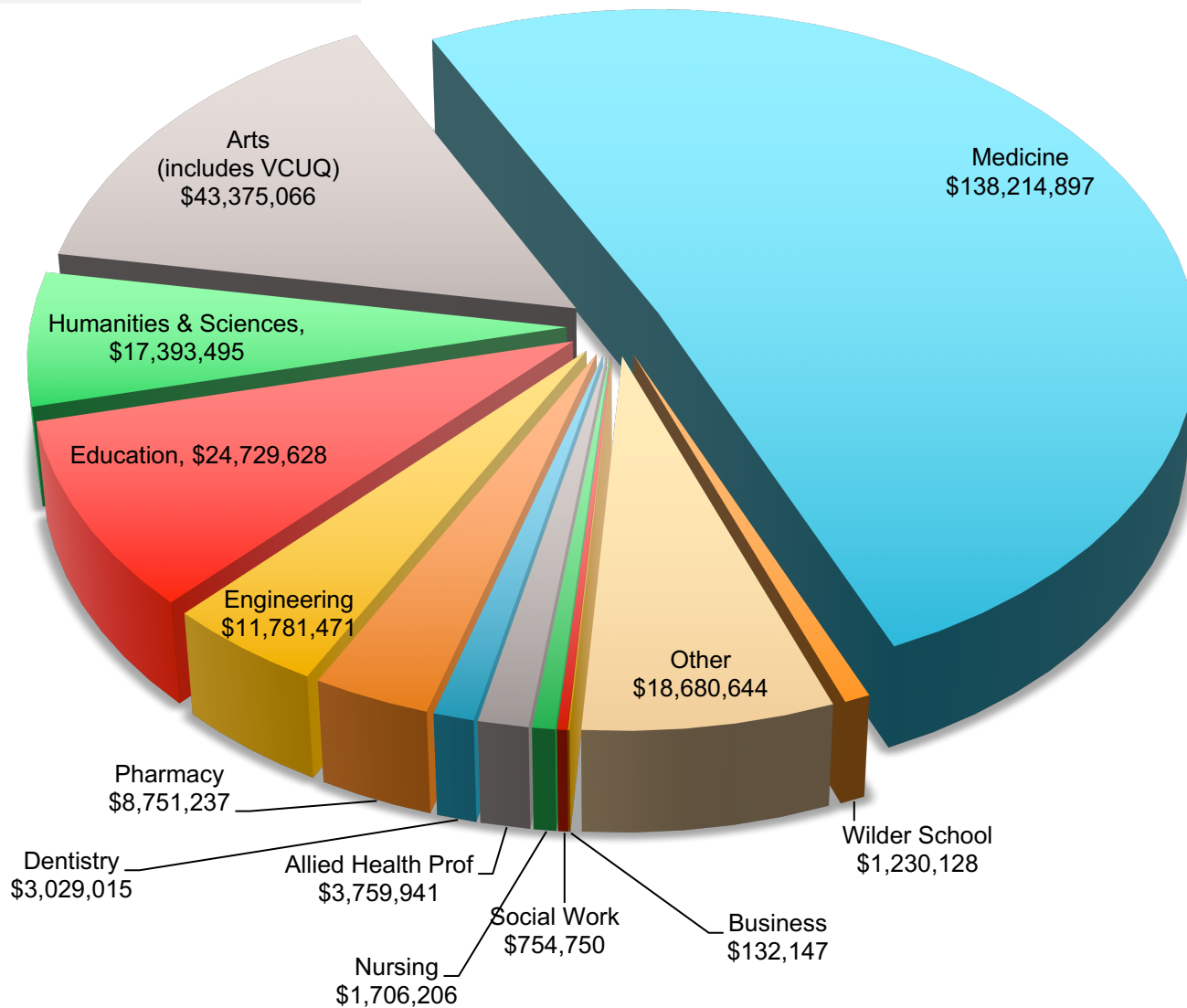


VCU Sponsored Program Awards by Source FY 2016



VCU Sponsored Program Awards: Unit-Level Analysis FY 2016

FY 2016 Total: \$271,199,199

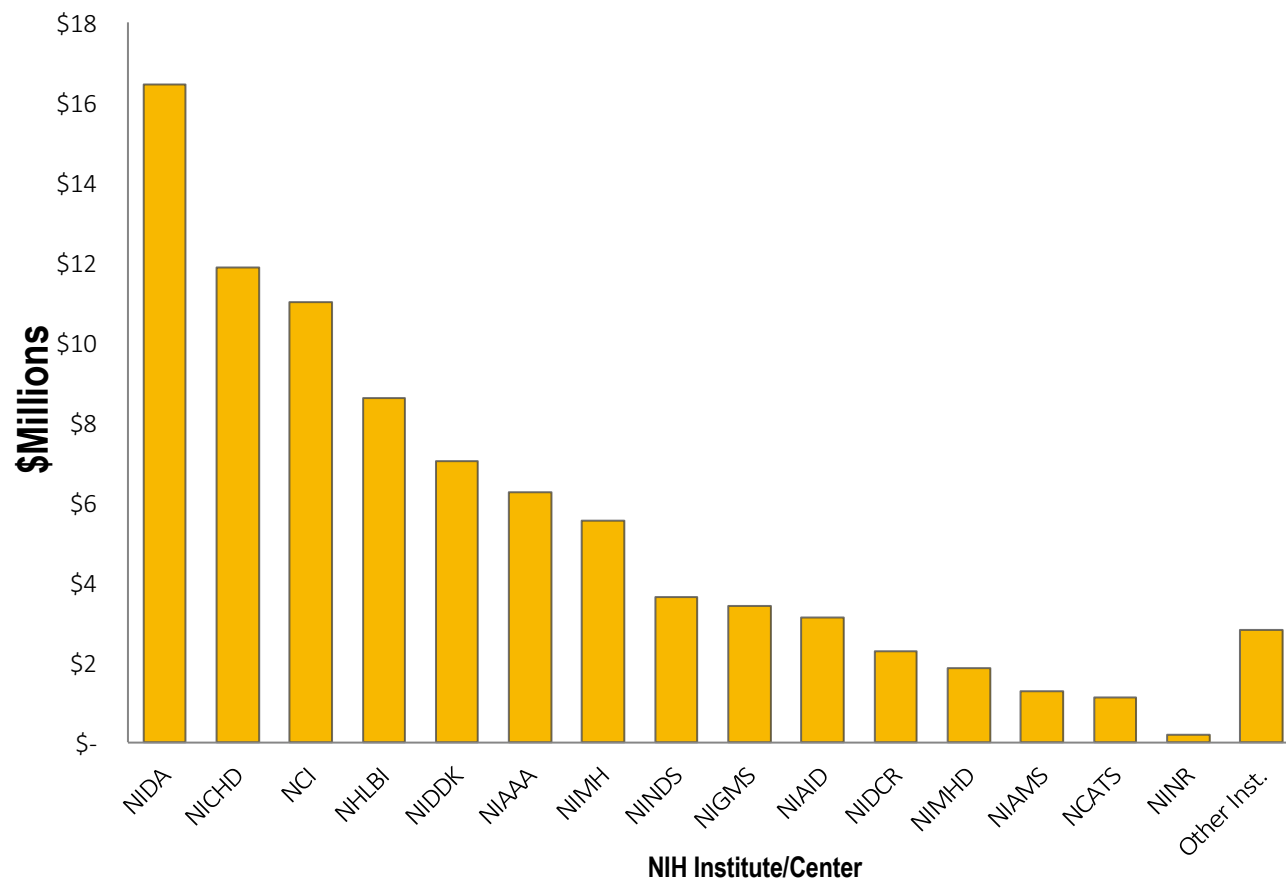


Abbrev	National Institute
NIDA	Drug Abuse
NHLBI	Heart, Lung, & Blood Inst.
NCI	National Cancer Institute
NIAAA	Alcohol Abuse & Alcoholism
NIDDK	Diabetes & Digestive & Kidney Dis.
NICHD	Child Health & Human Dev.
NIMH	Mental Health
NCATS	National Center For Advancing Translational Science
NIGMS	General Medical Sciences
NIAID	Allergy & Infectious Disease
NIDCR	Dental & Craniofacial Research
NINDS	Neurological Disorders & Stroke
NIMHD	Minority Health & Health Disparities
NIAMS	Arthritis & Musculoskeletal & Skin Disorders
NINR	Nursing Research
Other Inst.	Environmental Health Sciences; Aging; Deafness & Other Comm. Disorders; Eye Institute; National Library of Medicine; Biomedical Imaging & Bioengineering

VCU Sponsored Program Awards: NIH Portfolio FY 2016

FY 2016 Total: \$271,199,199

FY 2016 NIH: \$86,412,199



NIH Supported Research in Neurosciences: Combined FY16 Funding from NIDA, NIAAA, NIMH and NINDS

INSTITUTION	NUMBER OF AWARDS	FUNDING	Rank (out of 760 institutions)
VIRGINIA COMMONWEALTH UNIVERSITY	79	\$26,992,876	32
UNIVERSITY OF VIRGINIA	40	\$20,217,335	50
VIRGINIA TECH	24	\$8,850,260	105
GEORGE MASON UNIVERSITY	15	\$3,413,082	180
EASTERN VIRGINIA MEDICAL SCHOOL	4	\$1,318,699	272

Source: NIH RePORTER

<https://projectreporter.nih.gov/reporter.cfm>

VCU Center for Rehabilitation Sciences and Engineering & Chronic Effects of Neurotrauma Consortium

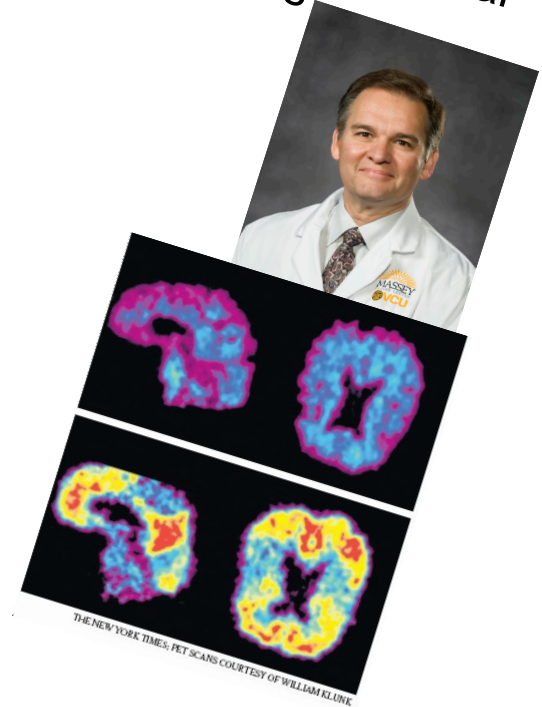


Dr. David Cifu:
Understanding mild TBI and
concussion

Dr. Randall Merchant: searching for new diagnostics
for TBI and concussion

VCU Massey Cancer Center

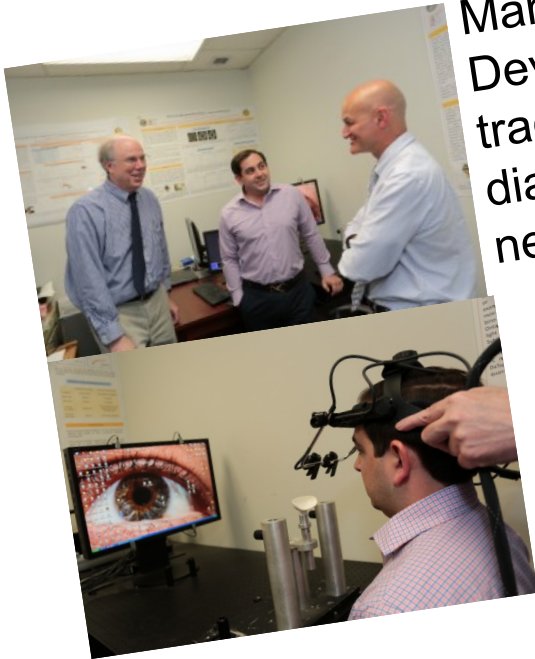
Dr. Leland Rogers: Low dose
Radiation therapy to clear
amyloid plaques



**VCU Parkinson's and Movement Disorder
Center and the Department of Biomedical
Engineering**

**Virginia Institute for Psychiatric and
Behavioral Genetics**

Drs. Paul Wetzel and
Mark Baron:
Developed an eye
tracking device for
diagnosing more than 20
neurological diseases



Dr. Jack Hettema et
al.: Identified genetic
determinants that
could increase the risk
for five primary anxiety
disorders



VCU NIGMS/NIH-Funded Research Training Programs for Students Underrepresented in the Biomedical Sciences

Grant # / PI	Title	Dates	Description
T32GM092447 J. Sharpe (PI) S. Golding (co-I)	VCU Minority Access to Research Careers Program (MARC)	2010-2016	VCU undergraduate honors students
R25GM090084 L. De Felice (PI) S. Golding (co-I)	VCU Initiative for Maximizing Student Diversity (IMSD)	2010-2018	VCU undergraduates and PhD students
R25GM089614 J. Lloyd (PI) G. Buck (co-I)	VCU Postbaccalaureate Research Experience Program (PREP)	2010-2019	Recent college graduates
K12GM93817 P. Fisher (PI) J. Lloyd (coPI)	VCU Institutional Research Career Development Award (IRACDA)	2010-2016	Research and teaching training for postdoctoral fellows. Research at VCU; Teaching at Virginia Union University or Virginia State University



University Programs

- Allied Health Professions
- Arts
- Business
- da Vinci Center
- Dentistry
- Education
- Engineering
- Government and Public Affairs
- Humanities and Sciences
- Life Sciences
- Medicine
- Nursing
- Pharmacy
- Social Work
- World Studies

Required: Humanities, Mathematics, English (including composition), Sciences (biological or physical), Social science

VCU School of Engineering

- Founded in 1996
- Six Undergraduate Majors
- 1700 Undergrads
- 300 Graduate



Our graduate degree programs:

- M.S. and Ph.D. in Biomedical Engineering
- M.S. in Computer and Information Systems Security
- M.S. in Computer Science
- M.S. and Ph.D. in Mechanical and Nuclear Engineering
- M.S. and Ph.D. in Engineering with tracks in:
 - Chemical and life science engineering
 - Computer science (Ph.D. only)
 - Electrical and computer engineering

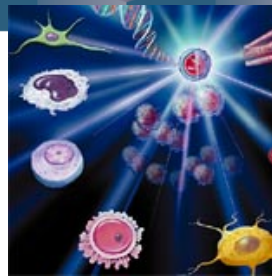


- 300,000 square feet space**
- West Hall, East Hall**
 - Wright Virginia Microelectronics Center**
 - Institute of Engineering & Medicine**
 - BioTech1, BioTech8**



Institute for Engineering and Medicine

VCU Nano Characterization facility



VCU Life
Sciences

Medical Center



Biomedical

- Tissue and Cellular Engineering
- Nanomedicine
- Pulmonary Mechanobiology
- Biomedical imaging systems
- Orthopaedic biomechanics
- Biomaterials
- Human-computer interfaces
- Cardiovascular devices
- Rehabilitation engineering

Chemical and Life Science

- Pharmaceutical Engineering
- Bio-molecular Engineering
- Systems Biology Engineering
- Surface Science & Polymers
- Nanosciences & Biomaterials
- Functional Polymer Surfaces
- Supercritical Fluids Laboratory
- Stem Cell Engineering

Computer Science

- Bioinspired / cognitive sensor networks
- Computational neuroscience

- Data mining / big data
- Machine learning
- Natural language processing
- Quantum computing
- Security and privacy (cloud/social networks)
- Smart grid

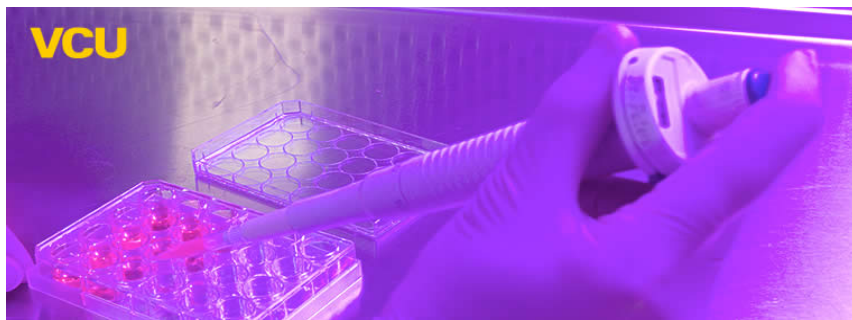
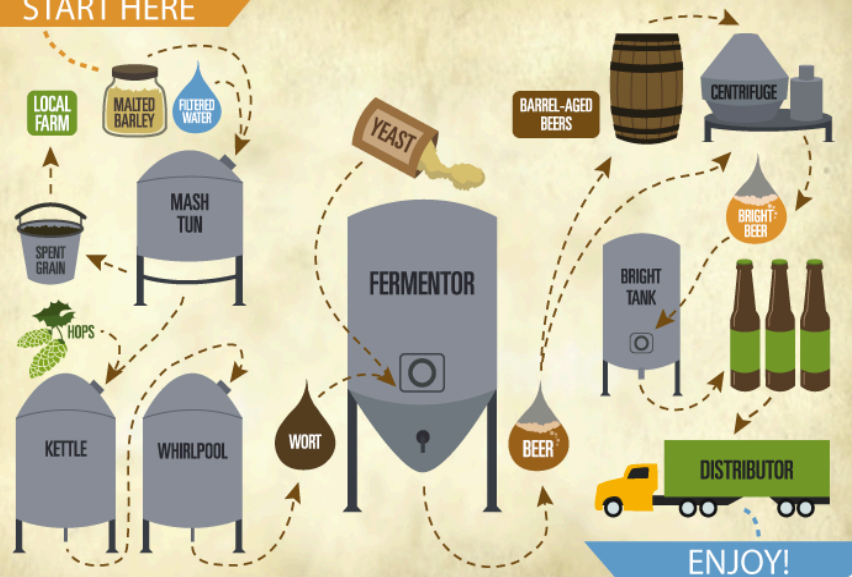
Electrical / Computer

- Controls / communications
- Data storage / high performance computing
- Embedded applications
- Power systems
- Micro/nanoelectronics

Mechanical Nuclear

- Functional materials(smart, microporous, sensors)
- Energy (solar, nuclear, flow control, HT materials)
- Medicine (air filtration, drug delivery, biomechanics)

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VCU Contacts / POI

Francis Macrina, PhD

Vice President for Research and Innovation

Address: 800 East Leigh Street,
Suite 3200

PO Box 980568 Richmond, VA
23298-0568

Tel: (804) 828-2262

email: macrina@vcu.edu

Barbara Boyan, PhD

Professor and Dean of
Engineering, (NAE Member)

Address: 601 West Main St.
West Hall, Room 331A

P.O. Box 843068 Richmond,
Virginia 23284-3068

Tel: (804) 828-0190

Email: bboyan@vcu.edu

Gregory Triplett, PhD

Professor and Associate Dean, Engineering

Tel:(804) 828-5387 Email: getriplett@vcu.edu